

The Quiet Revolution: DAB and the Switchover to Digital Radio in the United Kingdom

La revolución discreta: el DAB y la normalización de la radio digital en el Reino Unido

Iraultza isila: DAB eta irrati digitalera aldaketa Erresuma Batuan

*Guy Starkey*¹

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Abstract

If the development of digital radio is a revolution in audiences' consumption of the medium led by relatively recent advances in distribution technology, it is a limited one. Yet, in the United Kingdom the impact of Digital Audio Broadcasting (DAB) has far outstripped that elsewhere in the developed world. Behind dramatic recent growth in receiver sales and listening hours lie concerted public and private sector investment, massive falls in unit pricing and a broadening of choice through the provision of additional, as opposed to simulcast, services. DAB is not having an easy ride, though, and competition from other digital media as well as doubts about the technology mean the revolution could still falter, as the commercial sector in particular struggles to maintain its investment and new services close. A brief flirtation with mobile television, once promising instant returns on that investment, ended abruptly this year, but television may again come to the rescue. The coming year will be decisive in determining whether in the UK radio does indeed have its own digital switchover.

Keywords: Radio · Digital · DAB · Digital Audio Broadcasting · Transmission · Switchover · Receiver · Channels · Multiplex

¹ University of Sunderland, England, guy.starkey@sunderland.ac.uk

Resumen

El desarrollo de la radio digital es una revolución en el consumo del medio por parte de su audiencia de resultados de avances en la tecnología distributiva, pero es muy limitada. Sin embargo en el Reino Unido el impacto del sistema DAB (Digital Audio Broadcasting) es el más avanzado en el mundo desarrollado. Crecimientos grandes en las ventas de receptores y en las horas de escucha, han venido de las manos de una inversión concertada de los sectores públicos y privados, reducciones en los precios de las unidades y una gran expansión en la diversidad de canales, en lugar de retransmitir simultáneamente servicios analógicos existentes. Aunque el sistema DAB tiene un futuro incierto, y la concurrencia de los otros medios digitales, con dudas sobre la tecnología, amenazan la revolución numérica, mientras el sector privado se esfuerza en mantener su inversión y se cierran nuevos canales. Un flirteo breve con la televisión móvil, que a la vez parecía ofrecer rendimientos inmediatos de esta inversión, se ha paralizado repentinamente este año, pero con todo la televisión puede ir al socorro de la radio. El año que viene será decisivo si de verdad la radio tendrá su propia revolución digital.

Palabras-clave: Radio · Digital · DAB · Digital Audio Broadcasting · Transmisión · Receptor · Canales · Multiplex

Laburpena

Irrati digitalaren garapena entzulegoak egiten duen hedabidearen kontsumoan iraultza bat da. Teknologia distributiboan egin diren aurrerapenak oso garrantzitsua izan dira, baina haien zabalkundea oso mugatua izan da, Erresuma Batuan izan ezik, non DAB (Digital Audio Broadcasting) sistemaren eragina munduko handiena izan den. Saldutako hargailuen kopurua eta entzuleen ordu kopuruen gorakada sektore publiko eta pribatuek adostutako inbertsioen eskutik etorri da, baina baita ere unitateen merketzeari eta kanalen ugaritzeari esker. DAB sistemak etorkizun zalantzarri bat izan eta gainerako hedabide digitalen etorrerak iraultza numerikoa ezbaian jartzen duen arren, sektore pribatua egin dituen inbertsioak babesten saiatzen ari da. Telebista mugikorarekin izan zen elkarlan laburra, berehalako etekinak emango zituela zirudiena, aurten bat-batean amaitu da. Datorren urtea erabakiorra izango da irratiak bere iraultza digitala edukiko duen jakiteko.

Gako-hitzak: Irratia · Digitala · DAB · Digital Audio Broadcasting · Transmisioa · Hargailua · Kanalak · Multiplex

0. Introduction

Compared to other countries, in the United Kingdom the growth of digital radio has been phenomenal, with interest in the medium-specific technology Digital Audio Broadcasting (DAB) far out-stripping that in any other. Using the Eureka 147 standard promoted to Europe by the European Telecommunications Standards Institute (ETSI, 2006), DAB bundles radio channels into so-called 'multiplexes' which use digital encoding to maximise the use of bandwidth available at any given frequency on a dedicated broadcast band. As the development of DAB in Spain continues to proceed at a relatively slow pace, the total sales of DAB receivers in the UK now far exceed 7 million. Regular updates by WorldDMB, the organisation charged with promoting the Eureka 147 standard around the world² report very variable levels of commitment to the technology, with only a handful of countries taking realistic steps towards a digital switchover. The WorldDMB web site is regularly updated with developments in different territories, but often such negative practical problems as how and where to purchase a DAB receiver lurk behind the headlines.³

However, while impressive by comparison with that in other countries, the UK experience is still far from a broadcasting revolution. If a revolution of any kind, it is certainly a quiet one, and almost one happening by stealth. A date for analogue switch off of traditional radio transmissions has still not been set - unlike in television, where a rolling programme has already begun to force the population to migrate from a national network of five analogue terrestrial channels to a range of digital alternatives distributed by terrestrial transmitters, communications satellites and cable networks. Yet, radio and television are two very different media, both in the way they are consumed and in the way they are perceived. The success of subscription television shows it is a product that audiences are prepared to pay for, whereas with a few minor exceptions radio is not. In its June 2008 report to the Secretary of State for Culture, Media and Sport, the Digital Radio Working Group recommended a mixed economy in which DAB is the preferred platform for the next fifteen to twenty years, but in which it is supplemented by local and community FM broadcasts (DRWG, 2008).

² World Digital Multimedia Broadcasting lists 110 member organisations from 29 countries, including ETSI, the European Broadcasting Union (EBU), the European Commission, several national communications regulators and public and private sector broadcasters including the BBC, Radio France and Spain's Foro de la Radio Digital, but not Radio Nacional de España.

³ The Annual General Meeting of the Groupe de Recherches et d'Etudes sur la Radio (GRER) heard that in France DAB receivers were virtually impossible to source (4 October 2008).

In practice eleven years of slow but sure progress was set in motion by the Broadcasting Act 1996, just as in Spain the Plan Técnico Nacional de Radiodifusión Sonora Digital was published in 1999 (Chaparro Escudero, 2002: 153-4). Why has progress been made in the UK, though, whereas in Spain and elsewhere the impact on listening has been minimal? Notwithstanding governmental encouragement, in the UK as elsewhere, and just as in other broadcast media, the transition to digital, if it is to be successful, is highly dependent on the delicate balance between consumer acceptance, broadcaster investment and manufacturer support (Hendy, 2000: 50-52). DAB has struggled to gain a foothold in most other markets because that balance has been missing. In the UK, however, initial receiver prices of around €400 have plummeted to €35, making a DAB radio set affordable even for middle and low-income families. Manufacturer acceptance of the technology, once a critical mass of sales was achieved around 2003, began to drive down prices, allowing the number of units sold to gain in momentum - to the extent that now budget DAB receivers are commonly on sale in larger supermarkets and they were among the more attractive 'must have' electronic purchases for Christmas 2007. Market research by GfK showed that 550,000 units were sold in December 2007 alone, an increase of 22% on the same period in 2006. One national retailer, John Lewis, reported that DAB radios were outselling fashionable, branded MP3 players at a rate of six per minute, compared with five iPods per minute (Mackenzie, 2008).

This has only been achieved through a massive investment in original programming by the public and commercial broadcasters in the UK, who have ensured that 'going digital' offers listeners substantially greater choices of listening content than mere simulcasting of existing FM or AM services would have allowed. The commercial sector alone has injected almost €200 millions into programming for the platform (*Radio Magazine*, 2008). The cross-industry initiative, the Digital Radio Development Bureau (DRDB), provided the clear focus and coordinated strategy necessary for DAB to gain such a strong foothold in the UK market, and decisions taken by Government and the previous regulator, the Radio Authority, in the late 1990s to link the re-licensing of FM services to commercial sector support of DAB were also crucial. For 2008, the DRDB forecast a further 2.6 million sales, which would bring the total to 9.1 million - a reach of 30% of all UK households. Meanwhile, listening to DAB has already risen to its highest ever levels: over one hundred million listening hours (DRDB, 2008). Infrastructural investment has also been strong: approximately 85 per cent of the United Kingdom is currently served by a network of national, regional and local multiplexes, compared with the barely ten per cent of mainland Spain which is within reach of RNE's DAB services. It is possible, (depending on the route because there

are gaps in coverage,) to drive many hundreds of miles in the UK without any interruption to a national DAB service. Early adopters are highly susceptible to repeat purchases and the traditional pattern of multiple FM and AM radio sets in use in different rooms around the house is being repeated, as listeners' understandable wishes to hear a wider range of radio formats makes them want those listening choices to be available as they move around the home⁴.

1. Digital programming

The BBC made an early commitment to the technology, being granted under the Act the spectrum to establish and run a national multiplex dedicated to simulcasting its existing national services, Radio 1, Radio 2, Radio 3, Radio 4 and Radio FiveLive and to introducing 1Xtra, FiveLive Sports Extra, 6Music, BBC7 and the BBC World Service – the latter being long-established overseas but previously unavailable in the UK. As a publicly-funded state-owned broadcaster, though, in one sense it was morally bound to do so, but there have been few developments in broadcasting where the Corporation has felt it can afford to be left behind by the commercial sector. The surprise in the development of radio programming for DAB was that the commercial sector was so keen to embrace it, even in the absence of any government-imposed threat of an impending analogue switch-off, as is already underway in the television industry. When the then regulator, the Radio Authority, awarded a national *commercial* multiplex in 1998, the winning consortium, Digital One, began a sustained programme of investment that has still to produce a profit: a whole raft of new services, intended to be financed through advertising and sponsorship, launched on DAB soon after the licence award. Some of them remain on air at the time of writing, including Planet Rock (see Table 1) with its audience of over half a million listeners (RAJAR, 2008), and in 2006 Digital One's majority shareholder, GCap Media, launched a new offering called 'the jazz' which it immediately began cross-promoting on its national FM classical music station Classic FM. Other slots on the first national commercial multiplex were occupied by

⁴ The essentially secondary nature of radio listening identified by Crisell (1994: 212-3) is actually an advantage for the medium in that listening can take place while engaging in other activities and it does not necessarily have to stop when moving from one primary activity to another. Listening to the radio while dressing in the bathroom may easily be followed by listening to the radio while making breakfast – all that is needed to avoid having to carry the radio set around the house is a second and further sets, and multiple DAB households are demonstrably becoming more common as listeners find they like the increased choice.

simulcasts of Classic FM, Virgin Radio and talkSPORT, as well as a number of other new services, including Life, Core and Bloomberg.

The extra choice offered by DAB from the outset was increased by the advertisement of local and semi-regional commercial multiplexes, initially covering the major urban centres, but now being extended to more rural communities. Each of these licences is awarded by the regulator to the applicant it considers best able to extend choice in the advertised editorial area. A large number of new quasi-national services have been created for carriage in those areas where the commercial multiplex operator has included them in the offer. They include the rock station The Arrow, a mellow music sequence called Chill and the rolling news service DNN. There have also been generic, digital versions of some thematic regional FM stations, such as the dance music station Galaxy: available via analogue transmissions in the North-East of England, Yorkshire, Manchester and Birmingham but on DAB in a number of other regions. Similarly, it isn't just Londoners who may tune to DAB to hear XFM for 'indie music' and LBC for talk. The Arrow, like LBC and some others, includes regional content, consisting of news, travel and what's on information, inserted along with regional idents (on-air identifications) where other analogue stations owned by the same group are able to repackage material they are already producing for their existing outlets. In the North-East of England, for example, the regional FM station owned by Global Radio (formerly Chrysalis Radio Group,) Galaxy, produces news and travel inserts for the DAB relay of the talk station LBC. These regional and local multiplexes also carry simulcasts of FM and AM services in their areas: the Magic and Gold networks of AM stations play mainly oldies but reach tiny audiences because AM was long ago eclipsed by FM as the radio broadcast band of choice, yet they are now finding new audiences because DAB quality is vastly superior to AM.

Also simulcast on DAB are the often market-leading local commercial FM stations making up what was once called the Independent Local Radio (ILR) network, such as Metro Radio in Newcastle. These familiar brands are now playing a large part in drawing their own audiences to DAB. Persuading the owners of these established FM licences to simulcast on DAB was one of the key achievements of the Radio Authority before its demise. It offered FM licensees an automatic renewal of their FM licences if they financed the DAB simulcast, and licensees willingly took up the offer because it removed the risk of losing the potentially lucrative FM licence to a rival in a subsequent bidding war⁵.

⁵ Ironically the BBC's local and regional services are carried on local and regional commercial multiplexes, because commercial contractors operating them are required under the terms of their DAB licences to provide space for the local BBC station if there is one.

Table 1. Audiences for digital-only UK radio stations (via all platforms)

Station name	Format	Reach	Ownership
<i>Five Live Sports Extra</i>	sports commentary	630,000	BBC
<i>BBC 6 Music</i>	new and classic music	493,000	BBC
<i>1Xtra from the BBC</i>	black dance	453,000	BBC
<i>BBC7</i>	classic comedy/drama	853,000	BBC
<i>BBC World Service</i>	world news, current affairs, magazines	1,183,000	BBC
<i>The Arrow</i>	soft classic rock	150,000	Global
<i>Chill</i>	easy	197,000	GCap Media
<i>Core</i>	contemporary	94,000	GCap Media
<i>Fun Radio</i>	children's	57,000	GCap Media / HIT Entertainment
<i>Heat</i>	classic hits	386,000	EMAP
<i>The Hits</i>	contemporary hits	1,364,000	EMAP
<i>Life</i>	80s, 90s and today	89,000	GCap Media
<i>Mojo Radio</i>	classic hits	221,000	EMAP
<i>Oneword Radio</i>	book readings/reviews	157,000	Channel Four / UBC Media
<i>Planet Rock</i>	classic rock	563,000	GCap Media
<i>Q</i>	classic hits	298,000	EMAP
<i>Smash Hits Radio</i>	contemporary hits	966,000	EMAP
<i>theJazz</i>	classic jazz	364,000	GCap Media
<i>Virgin Radio Classic Rock</i>	classic rock	242,000	SMG
<i>Virgin Radio Xtreme</i>	new music	73,000	SMG
<i>Virgin Radio Groove</i>	classic soul and disco	109,000	SMG

Source: RAJAR 4th quarter data, 2007 (RAJAR, 2008)

In 2007 Ofcom announced that it was awarding the licence to run a *second* national commercial multiplex to 4Digital, a bid from the publicly-owned television broadcaster Channel Four. Proposing to win new audiences to radio with a mix of original programming over ten new services, Channel Four was bullish about its commercial prospects in the longer term. Its offer promised to include a national rolling news network, a teen station E4Radio, lifestyle, newstalk and music stations, all backed by considerable launch publicity through cross-promotion on the broadcaster's range of eight television channels, one of which benefits from being available on analogue terrestrial television.

2. Challenges to DAB

However, the growth of DAB has not been unproblematic, and its status as the radio industry's preferred platform for a natural progression from analogue to digital transmission faces significant challenges now and in

the future. Most significantly, technological advance in radio has not occurred in isolation and other media have been more agile in responding to the opportunities afforded by 'going digital'. Pay TV giant BSkyB, launched on a more modest scale in 1984 as a single channel by Rupert Murdoch's News Corporation but currently offering subscribers over 400 channels, benefits from a straightforward and for over seven million households clearly compelling proposition: vastly more choice, early-run movies and sporting exclusives which terrestrial television cannot match. Technology buffs aside, consumers buy into content, rather than technology, and Sky's success stems from the ability of an almost infallible platform to provide easy menu-driven access to that increased choice. Since Sky launched its digital service in 1998, the user interface has changed very little, and as the number of channels has mushroomed the most noticeable development has been the incorporation of PVR-style recording and playback into the one satellite receiver. One effect of this has been to raise consumer expectations of digital technology to levels which DAB radio inevitably struggles to even approach.

Other media have followed suit, and although broadband internet technology presents technophobes with greater challenges in terms of establishing and maintaining network connections for themselves, navigating around a myriad of different sources and so on, the availability of an almost infinite number of attractive alternatives presents DAB radio with considerable competition. Historically, the mass adoption of television in the 1950s brought about the single biggest desertion of radio by its audiences, in its hundred-year history. Soon after the Canadian Reginald Fessenden first broadcast a radio programme in 1906, the medium's future seemed secure: this was the first electronic medium to bring news, information and entertainment into the home, and radio was instrumental in the demise of the music hall, just as in turn the arrival of television resulted in a huge decline in cinema audiences in the 1960s and 1970s. Today, the internet is but the newest electronic medium to bring alternative content into the home, and the platform-specific complications in engaging with it will inevitably be progressively resolved.

Then there are significant problems with DAB technology itself. In those countries which have tried to sell DAB to consumers as a technological upgrade primarily offering better sound quality as its unique selling proposition, the message has largely failed to convince, particularly as gaps in transmission coverage cause complete loss of signal rather than mere loss of quality and those gaps are more difficult and costly to resolve with DAB than with FM and AM. While an FM signal may momentarily fade or suffer from interference, especially when driving around in a car, listeners have learned to anticipate that it will be a temporary deterioration

to the sound quality and that it will soon improve. However, if the digital signal falls below a certain threshold the programme breaks up and then is lost altogether. It is not surprising that of the different models of DAB set on sale in 2008, very few are car radios, even though it was the introduction of the transistor and consequently radio's new-found mobility that brought about the medium's renaissance in the 1960s and 1970s (Crisell, 1994:11-13). In the UK DAB was initially sold on the basis that it offered better quality, but while this is true of higher bit rate transmissions, where the signal has been compressed beyond the technology's capacity to faithfully reproduce sound without any audible deterioration to original music recordings even lay people can perceive a weakness in the claim⁶.

The essential problem with DAB is that the Eureka 147 standard uses twentieth century technology, namely MP2 digital encoding, which has long been surpassed by twenty-first century advances in digitisation. That is of course MP3, popularised in streaming and podcasting web contexts, and MP4 which is a further refinement of the principles involved. Consequently, a campaign for the replacement of DAB with a new standard, DAB+, is gathering steam. DAB+ promises more reliable encoding within existing bandwidths and enhanced additionality. That is, the ability to provide better added content alongside the audio stream, in the form of images and more detailed explanatory data than the simple, slowly scrolling text currently broadcast alongside DAB audio. Despite the enthusiasm of its proponents, the biggest deterrent facing broadcasters and the regulator, Ofcom, if they were to seriously consider adopting DAB+, is the newer standard's total incompatibility with almost every existing model of DAB receiver. Replacing DAB with DAB+ would render completely redundant those 6,45 million receivers currently in use and risk seriously alienating all those early adopters and other consumers who have bought into a technology expecting it to last a reasonable enough length of time to justify their capital outlay. Expecting consumers to write off their initial investment in DAB and then commit to DAB+ would be both foolish and over optimistic, because a good deal of trust in the industry would have been lost.

Then there were the poachers: television companies taking DAB bandwidth away from radio broadcasters *with* their consent. As recently as 2006 it appeared that DAB bandwidth was to be sequestered by the television industry, when the owners of the single national commercial

⁶ For example, when the country's second largest radio group, EMAP, launched Heat as a radio spin-off from its popular consumer magazine on the same name, a very low bit rate reduced the audio quality to the extent that it sounded like music played over the telephone. Similarly, bandwidth restrictions meant that GCap Media's high-profile launch of the jazz in 2006 was in mono, even though it was being targeted at high-income households – an anomaly that was corrected in January 2008 when the bit rate was increased to 128 stereo, a massive improvement on its original 48.

digital multiplex, Digital One, secured Ofcom approval for the lease of bandwidth to a mobile television service, BT Movio. Effectively, part of the spectrum reserved for radio was being used for non-radio broadcasting, delivering a small number of television channels to mobile phone subscribers, reducing the bandwidth available to radio broadcasters and listeners alike. Although this initiative provided Digital One with a further and very welcome new income stream, luckily for radio this venture proved unsuccessful, and in January 2008 the BT Movio service was withdrawn from Digital One's multiplex, releasing that bandwidth again for radio broadcasting. Thus the irony of a television service actually using radio frequencies to provide a competing service was short lived. Interestingly though, it is radio's use of television platforms which presents one of the most acute threats to DAB's intended status as the prime focus of radio's journey to the digital domain. Before we consider this reverse poaching of television spectrum by radio, however, let us note some other setbacks which have beset the development of DAB.

3. Early disappointments

Even though the DAB experience in the United Kingdom has been far better than elsewhere and it still has considerable potential, it has not been achieved without its disappointments. Several DAB stations have closed down after losing their owners enough money for them to prefer writing off their sustained investment to continuing to invest in them. Bloomberg Radio and DNN were among the first. GCap Media pulled the plug on Life and Core in January 2008, having already merged the competing Capital Gold and Classic Gold services which predated its own creation as a merger of GWR Group and Capital Radio Group in 2004. Most spectacular was the demise of the all-speech service One Word, consisting mainly of book readings and classic drama, but also interviews with authors and book and film reviews. Speech is always expensive to produce, and as the loss-making service failed to attract more than one fifth of the rival BBC7's audience, it was perhaps doomed to failure. Worryingly, though, until just before its closedown it was fifty per cent-owned by Channel Four, and this hardly augurs well for that broadcaster's future in radio. Other services have been cancelled even before they took to the air. In January 2008 Virgin announced it would not, after all, be providing additional services to the national 4Digital multiplex when it launches⁷. Since the announcement of a rolling news service on 4Digital,

⁷ Virgin was rebranded as Absolute Radio in October 2008, following its purchase by Times of India Group.

Global Radio pulled out of the proposed joint venture with Sky News, leaving Sky looking around for a new potential partner in Sky Radio News.

Manufacturers, though, have been quick to point out in their sales material that the channel line-up may vary, and that the continuation of particular stations is not guaranteed to be part of the programme service on offer. This position is justified by the willingness of new services to fill the void created by failing stations. The Christian broadcaster UCB, pointedly *not* financed by advertising revenue, has been quick to take up vacant slots on regional and local multiplexes for two of its offerings, UCB UK and UCB Inspirational. In January 2008 the publicly-financed British Forces Broadcasting Service (BFBS) snapped up the national multiplex slot recently vacated by Core, so service personnel at home and families of those serving overseas could hear the same radio station and use it to pass messages between each other. This was a trial service, though, and when the trial ended, BFBS withdrew from the multiplex. 4Digital continues to insist that its ten-channel line-up will go ahead, even if its launch is delayed until early 2009 and not all services feature in the initial launch. Since Ofcom awarded it the licence in a two-horse race against another bidder, National Grid Wireless, the regulator will be keen to see that it succeeds.

However, disappointments have not been confined to the number and nature of services on offer to the listener. Initially Digital One was aghast at the prospect of a commercial rival – the second national multiplex – coming late to the DAB market, just as audiences were picking up. At the 2006 Radio Festival, the then Chief Executive, Ralph Bernard, announced that he might initiate legal action against the regulator, Ofcom, for breaking promises made that Digital One would be given time to recoup its investment before such direct competition were allowed to destabilise its business plan. Within months Ofcom had relaxed the rules on the use of DAB frequencies for data transmission and Digital One had concluded that potentially lucrative deal with BT Movio for a limited television-to-mobile phone service to be carried on its multiplex. This arrangement turned part of Digital One's operation into an income generator, instead of a loss maker (albeit only temporarily, as the BT Movio service left the multiplex in January 2008 as we have already seen). Bernard's successor at GCap, Fru Hazlitt, then rocked the industry a month later by ditching the company's long-term commitment to DAB, selling its stake in Digital One and announcing the imminent closure of Planet Rock and the jazz⁸.

⁸ the jazz did indeed close, but a last-minute buyout in June 2008 by entrepreneur Malcolm Bluemel, in partnership with a number of rock stars, saved Planet Rock from similarly falling silent.

Finally, DAB technology, based as it is on relatively inflexible cell-like coverage matrices rather like those used for mobile phones, has so far been a disappointment for small-scale commercial and community broadcasters. Just as a community radio sector has finally begun to grow in the United Kingdom, with Ofcom having awarded over 150 new low-power, not-for-profit services on FM, mass migration to DAB would starve these new stations of potential audiences. The local and regional multiplexes do not have the capacity to include the community radio sector as they are currently configured, so this new third tier of radio broadcasting looks likely to be left out of the digital revolution. Even large numbers of smaller commercial stations will be excluded, and The Local Radio Company group of twenty eight stations has made the strategic decision to stay off DAB altogether.

4. Digital alternatives

How, then has radio poached spectrum from television broadcasters? Since the launch of Sky's digital television service, it has carried a large number of radio stations, easily accessible through its main on-screen menu. Among the simulcast services of traditional analogue broadcasters are dozens of specialised digital-only stations, many of which are available only through Sky and also through the internet as streamed web-based services. Inevitably, the large number of different television and radio services available to Sky subscribers means that the available audience is thinly spread across them, but many have survived commercially over extended periods, despite significant carriage costs associated with uplinking to the satellites and high fees imposed by Sky for inclusion in the Electronic Programme Guide (EPG) through which audiences may access them. In 2007 Sky declared the EPG to be fully occupied, and slots within it now trade at a premium when an existing service decides to close down and effectively release its slot and channel number to another station which is prepared to pay for it. Sky's penetration of the market may be reaching its peak, and the growth in subscriber numbers has now slowed from the initial gains made soon after the digital launch. The adoption of digital television is still growing, though, especially as a rolling programme of switching off analogue television transmissions has now begun and will be completed in 2012. Central to this policy is the parallel digital *terrestrial* television platform, Freeview. It carries 27 radio stations and so the popularity of 'radio' listening through the television, via both Sky and Freeview, has far exceeded expectations, amounting to a weekly reach of 10,3 per cent in 2007. One of the most enthusiastic supporters of Freeview when it launched was EMAP, whose portfolio of radio stations which have been spun off from the original publishing group's magazine

interests includes Heat, Kerrang and Mojo. Being on Freeview since its inception in October 2002 enabled EMAP's digital-only stations to make up for audience losses by their ageing AM stations among several million households which have proven resistant to DAB⁹.

Table 2: Weekly reach and share listening data for three digital radio platforms

	All digital	DAB	Digital via TV	Internet
Weekly reach %	30	16.8	10.3	5.7
Weekly share %	16.6	10	3.1	1.9

Source: RAJAR 4th quarter data, 2007 (RAJAR, 2008)

The greatest potential threat to DAB comes from the internet. There is a considerable irony in a medium once called 'the wireless' being increasingly distributed over wires, be they copper or fibre optics. At present listening to streamed stations via broadband is gaining in popularity, despite the fixed nature of the home or office-based PC. While internet radio can provide an appealing background to the computing experience, the PC-bound nature of such software as Real Player, Winamp and the Windows Media Player means it is far removed from the simplicity of switching on a traditional radio set in the bathroom or using the medium for in-car entertainment. This year, though, the price of a new generation of internet radio receivers is set to plummet, bringing the portability around the home and the simplicity of use of traditional radio sets to the diversity and plurality of the current internet radio provision. These sets use wi-fi technology to access the web. They are menu-driven, so the consumer needs little technical expertise, being involved in a bare minimum of physical operations in order to access individual services. Providing the wi-fi link is working, the single, free-standing unit automatically accesses as many internet radio stations as it can find, using pre-loaded software to turn the selected stream into continuous audio on demand. The latest development, which is just months away, is for manufacturers to incorporate FM, DAB, DRM and internet wi-fi technology into a single receiver which uses a simple EPG to present the consumer with a vast, platform-neutral choice of listening – hundreds of stations, all instantly available by scrolling through a straightforward list, without the need for any prior knowledge of frequencies, broadcast bands or software configuration.

⁹ Since the period under discussion EMAP has been bought by the German media giant Bauer, although they have expressed a clear commitment to continue investing in their digital brands.

One of those bands, and another exciting prospect for digital radio is Digital Radio Mondiale (DRM). Using different digital encoding standards to DAB, DRM is being tested in a number of countries including Spain and the UK. Instead of using a dedicated broadcast band, it occupies frequencies within the existing AM or short wave bands, providing near-FM quality but doing so over the far greater distances achievable by radio transmissions of these wavelengths. National and regional digital broadcasts can be complemented by quality transmissions on an international scale, allowing broadcasters to reach audiences hundreds and thousands of miles away. This not only presents interesting possibilities for broadcasters and audiences, but raises issues around international news agendas and conflicting perspectives on global issues (Starkey, 2007: 118). Roll-out of DRM is a long way behind DAB, but its distinctiveness as a broadcast technology renders its potential something that should not be dismissed.

Such developments may lead broadcasters such as the BBC and Digital One to fear that their investment in DAB has been wasted. This would be particularly so because transmission via DAB is expensive as the initial investment in the distribution and transmission infrastructure has had to be recouped. Multiplex licensees have also charged external service providers carriage costs in order to service those expenses, and the regulatory burden, while nowhere near as onerous as that imposed by the Radio Authority and, since 2003, Ofcom on analogue services, has been considerable in terms of compliance over both content and licence fees. However, until wi-fi or some alternative transmission system becomes less localised, enabling it to reach listeners driving around in cars, and receivers become less expensive in order to allow listeners to move around the house, DAB retains a significant advantage. The latest audience figures bear this out: despite the drawbacks, DAB leads digital listening in the UK, as shown in Table 2, above.

5. What future for digital radio?

It is clear that while the forward march of digital radio in the United Kingdom has been, if anything, only a quiet revolution, there is no turning back the clock. Significant numbers of consumers have already invested in DAB, most of them ignorant of industry debates over the merits of migrating to incompatible DAB+ transmissions, DRM or even the possible extension of DAB into the L-band, another part of the radio frequency spectrum which would also render most DAB receivers anachronistic. Many of those consumers are content with the increased choice currently on offer from the broadcasters and additional features already

incorporated into their receivers, such as scrolling text and the flexibility of pause and rewind. Yet, commercial broadcasters in particular are becoming increasingly desperate to receive a return on their investment: GCap's sudden retreat from the platform bringing further uncertainty at a crucial time¹⁰.

Manufacturers have already achieved the economies of scale required to produce DAB receivers economically, and they rarely baulk at the prospect of new formats coming onto the market which will drive more consumer spending in their direction through the necessity to re-equip with newer technology. The key question facing DAB in the United Kingdom is whether the commercial broadcasters will have the patience to sustain their investment in DAB programming long enough for it to at last begin to pay dividends. Ultimately, consumer ignorance may increase, as receivers become increasingly multi-platform and menu-driven: a radio set which lists a large choice of stations accessed seamlessly via wi-fi, DAB, DRM and FM will soon give the listener a sense of platform neutrality, and such considerations as which band to select will become as old-fashioned as frequencies are in DAB households. Without a doubt, though, if not through DAB then through other platforms, the future for digital radio looks bright.

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¹⁰ Shortly afterwards GCap Media plc was bought by Global Radio, bringing yet more uncertainty to the commercial sector.

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